

one spare unit of the same classification shall be carried in lieu of spare charges for all such units of the same size and variety.

(b) Spare charges shall be so packaged as to minimize the hazards to personnel while recharging the units. Acid shall be contained in a Crown stopper type of bottle.

§ 193.50-20 Semiportable fire extinguishers.

(a) The frame or support of each size III, IV, and V fire extinguisher required by Table 193.50-10(a) must be welded or otherwise permanently attached to a bulkhead or deck.

(b) If an approved size III, IV, or V fire extinguisher has wheels and is not required by Table 193.50-10(a), it must be securely stowed when not in use to prevent it from rolling out of control under heavy sea conditions.

[CGD 77-039, 44 FR 34133, June 14, 1979]

§ 193.50-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 193.50-5 through 193.50-15 shall be complied with insofar as the number and general type of equipment is concerned.

(2) Existing installations previously approved, but not meeting the applicable requirements of §§ 193.50-5 through 193.50-15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection, and they are in general agreement with the degree of safety prescribed by Table 193.50-10(a). Minor modifications may be made to the same standard as the original installation: *Provided*, That in no case will a greater departure from the standards of Table 193.50-10(a) be permitted than presently exists.

(3) All new equipment and installations shall meet the applicable requirements in this subpart for new vessels.

Subpart 193.60—Fire Axes

§ 193.60-1 Application.

(a) The provisions of this subpart shall apply to all vessels other than unmanned barges.

(b) Unmanned barges are exempted from the requirements in this subpart. However, if such barges carry on board fire axes, then such equipment shall be in accordance with this subpart for manned barges.

§ 193.60-5 Number required.

(a) All vessels shall carry at least the minimum number of fire axes as set forth in Table 193.60-5(a). Nothing in this paragraph shall be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional fire axes as he deems necessary for the proper protection of the vessel.

TABLE 193.60-5(a)

Gross tons		Number of axes
Over	Not over	
.....	50	1
50	200	2
200	500	4
500	1,000	6
1,000	8

§ 193.60-10 Location.

(a) Fire axes shall be distributed throughout the spaces available to persons on board so as to be most readily available in the event of emergency.

(b) If fire axes are not located in the open, or behind glass, so that they may be readily seen, they may be placed in enclosures together with the firehose, provided such enclosures are marked as required by § 196.37-15 of this subchapter.

PART 194—HANDLING, USE, AND CONTROL OF EXPLOSIVES AND OTHER HAZARDOUS MATERIALS

Subpart 194.01—Application

Sec.

194.01-1 General.

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194.05-1 General.

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Subpart 194.10—Magazines

- 194.10–1 Application.
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- 194.10–10 Integral magazine construction.
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- 194.15–3 Responsibility.
- 194.15–5 Ventilation.
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- 194.15–15 Chemicals other than compressed gases.
- 194.15–17 Compressed gases other than inert gases.
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Subpart 194.20—Chemical Stores and/or Storerooms

- 194.20–1 General.
- 194.20–3 Responsibility.
- 194.20–5 Ventilation.
- 194.20–7 Fire protection.
- 194.20–9 Storage.
- 194.20–11 Flushing systems.
- 194.20–15 Chemical stores other than compressed gases.
- 194.20–17 Compressed gases.
- 194.20–19 Piping and electrical requirements.

Subpart 194.90—Vessels Contracted for Prior to March 1, 1968

- 194.90–1 Requirements.

AUTHORITY: 46 U.S.C. 2103, 2113, 3306; 49 U.S.C. App. 1804; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 67–83, 33 FR 1151, Jan. 27, 1968, unless otherwise noted.

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Subpart 194.01—Application

§ 194.01–1 General.

(a) The provisions of this part, with the exception of subpart 194.90, shall apply to all vessels other than non-self-propelled vessels of less than 300 gross tons contracted for on or after March 1, 1968.

(b) Non-self-propelled vessels of less than 300 gross tons shall not be subject to the provisions of this part except as provided otherwise by paragraph (c) of this section.

(c) Non-self-propelled vessels of less than 300 gross tons shall be governed by the applicable portions of 49 CFR parts 171–179, and the applicable portions of 33 CFR parts 6 and 121 to 126, inclusively. Alternately, the owner, at his option, may comply with the provisions of this part.

(d) Vessels contracted for prior to March 1, 1968, shall meet the requirements of subpart 194.90.

[CGFR 67–83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86–033, 53 FR 36026, Sept. 16, 1988]

Subpart 194.05—Stowage and Marking

§ 194.05–1 General.

(a) The master shall be held responsible for and shall require the proper handling, stowage, and marking of all chemical stores and reagents.

(b) Chemical stores shall be stowed in a chemical storeroom in approved drums, barrels, or other packages, properly marked and labeled, as prescribed by 49 CFR part 172 for those specific commodities, except that those chemical stores excluded from the storeroom by §§194.20–15 and 194.20–17, and those chemical stores not desired to be located in a chemical storeroom, shall be stored in accordance with the appropriate provisions of 49 CFR part 176 insofar as such regulations apply to cargo vessels.

(c) Ships' stores shall be regulated in accordance with the appropriate provisions of part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67–83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86–033, 53 FR 36027, Sept. 16, 1988]

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§ 194.05-3 Chemical stores.

(a) Chemical stores are those chemicals which possess one or more of the following properties and shall be classed, marked and labeled in accordance with 49 CFR part 172:

- (1) Explosives.
- (2) Flammable liquids.
- (3) Flammable solids.
- (4) Oxidizing materials.
- (5) Corrosive materials.
- (6) Compressed gasses.
- (7) Poisons.
- (8) Combustible liquids.
- (9) Other Regulated Materials (DOT Hazard Class "ORM").

(b) Substances for use in the chemistry laboratory, or to be stored in the chemical storeroom and generally covered under paragraph (a) of this section but not specifically listed by name in 49 CFR 172.101 must be approved by the Commandant (G-MSO) prior to being carried on board a vessel.

[CGD 86-033, 53 FR 36027, Sept. 16, 1988, as amended by CGD 97-057, 62 FR 51051, Sept. 30, 1997]

§ 194.05-5 Chemicals in the chemistry laboratory.

(a) Small working quantities of chemical stores in the chemistry laboratory which have been removed from the approved shipping container need not be marked or labeled as required by 49 CFR part 172. Reagent containers in the laboratory shall be marked to show at least the following:

- (1) Common chemical name.
- (2) Hazards, if any; e.g., flammable, poison, etc.

(b) In the interest of facilitating scientific activities, no restrictions are intended which will limit the variety of chemical stores which may be used in the chemical laboratory. With the knowledge and approval of the master, the laboratory supervisor may be responsible for stowage and use of materials within the laboratory and chemical storeroom.

(c) Reagent containers shall be properly secured against shifting and spillage. Insofar as practical all reagents

shall be stowed in suitable, unbreakable containers.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-7 Explosives—Detail requirements.

(a) Except as otherwise provided by this part, Division 1.1 and 1.2 (explosive) materials (as defined in 49 CFR 173.50) and blasting-caps must be carried in magazines specifically fitted for that purpose as described by subpart 194.10 of this part.

(b) Class 1 (explosive) materials (as defined in 49 CFR 173.50) must be identified by their appropriate DOT classification.

(c)(1) Compatibility of magazine stowage shall be in accordance with 49 CFR 176.144.

(2) Magazine chests, magazine vans, and deck stowage areas shall be separated by a distance of at least 25 feet if their contents are incompatible with each other. Reduction of this distance to allow for special configurations will be permitted only if specifically approved by the Commandant.

(d) On-deck stowage of unfused depth-charges or other unfused-case-type Class 1 (explosive) materials (as defined in 49 CFR 173.50) is authorized as follows:

(1) Stowage shall be in a location reasonably protected from the full force of boarding seas.

(2) Stowage shall be protected from direct exposure to the sun by overhead decks, awnings, or tarpaulins. Decks shall be constructed of incombustible materials; awnings and tarpaulins shall be fire-resistant and/or flame proof fabric.

(3) Items shall be properly secured by using existing vessel structures such as bulwarks, hatch coamings, shelter deck and poop bulkheads as part boundaries and effectively closing in the items by fitting angle bar closing means secured by bolting to clips or other parts of the ship's structure. Lashing of deck stowage is permitted provided eye pads or other suitable means are fitted to secure such lashings and provided the individual items are of such a configuration as to prevent slippage of the lashings. Shoring and dunnage may be used

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as necessary to further facilitate the security of the stowage.

(4) Stowage area shall be selected so as to provide for safe access to all internal spaces and to all parts of the deck required to be used in navigation and working of the vessel. Stowage shall not be on or under the bridge, or navigating deck, or within a distance, in a horizontal plane, of 25 feet of an operating or embarkation point of any lifeboat or raft. Reduction of this distance to allow for special configurations will be permitted only if specifically approved by the Commandant.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988; CGD 92-050, 59 FR 39966, Aug. 5, 1994; CGD 97-057, 62 FR 51051, Sept. 30, 1997]

§ 194.05-9 Flammable liquid chemical stores—Detail requirements.

(a) Flammable liquids as chemical stores and reagents are governed by subparts 194.15 and 194.20.

(b) Other flammable liquids are regulated by the appropriate portions of 49 CFR parts 172, 173, and 176 or part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988; 53 FR 46872, Nov. 21, 1988]

§ 194.05-11 Flammable solids and oxidizing materials—Detail requirements.

(a) Flammable solids and oxidizing materials used as chemical stores and reagents are governed by subparts 194.15 and 194.20.

(b) Oxidizing materials used as blasting agents are regulated by the appropriate portions of 49 CFR parts 172, 173, and 176.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988; 53 FR 46872, Nov. 21, 1988]

§ 194.05-13 Corrosive liquids as chemical stores—Detail requirements.

(a) Corrosive liquids as chemical stores and reagents are governed by subparts 194.15 and 194.20.

(b) Other corrosive liquids are regulated by the appropriate portions of 49 CFR parts 172, 173, and 176 or part 147 of

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[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-15 Compressed gases as chemical stores—Detail requirements.

(a) Compressed gases as chemical stores and reagents are governed by subparts 194.15 and 194.20.

(b) Other compressed gases are regulated in accordance with the appropriate portions of 49 CFR parts 172, 173, and 176 or part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-17 Poisonous articles as chemical stores—Detail requirements.

(a) Poisonous articles as chemical stores and reagents shall be governed by subparts 194.15 and 194.20.

(b) Other poisonous articles shall be regulated by the appropriate portions of 49 CFR parts 172, 173, and 176 or part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-19 Combustible liquids as chemical stores—Detail requirements.

(a) Combustible liquid chemical stores and reagents shall be governed by subparts 194.15 and 194.20.

(b) Other combustible liquids shall be regulated by the appropriate portions of 49 CFR parts 172, 173, and 176 or part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-21 Other regulated materials.

(a) Other Regulated Materials (DOT Hazard Class "ORM") as chemical stores and reagents shall be governed by appropriate portions of subparts 194.15 and 194.20 of this part.

(b) Other Regulated Materials (DOT Hazard Class "ORM") which are not chemical stores and reagents shall be

regulated by the appropriate portions of 49 CFR parts 172, 173, and 176.

[CGD 86-033, 53 FR 36027, Sept. 16, 1988]

Subpart 194.10—Magazines

§ 194.10-1 Application.

(a) The provisions of this subpart apply to the construction of integral magazines, magazine vans, and magazine chests.

(b) Loading, loading procedures, shipper's requirements, and other features not related to the construction of magazines shall be in accordance with the applicable provisions of 49 CFR parts 173 and 176 and 33 CFR part 6 and parts 121 to 126, inclusive.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.10-5 Type and location.

(a) *Integral magazines.* (1) Magazines shall be of permanent construction located below the freeboard deck and where practicable below the waterline.

(2) Magazines shall not be located in horizontal proximity to or below accommodation spaces.

(3) Magazines shall not be located adjacent to the collision bulkhead, nor in bearing with a bulkhead forming the boilerroom, engineroom, gallery, or other high fire hazard area boundary. If it is necessary to construct the magazine in proximity to these areas, a cofferdam space of at least 2 feet shall be provided between the bulkhead or deck involved and the magazine. Such a cofferdam shall be provided with suitable ventilation and shall not be used for storage purposes.

(b) *Magazine vans.* (1) Magazine vans may be installed on deck in a location protected from boarding seas. The location selected shall not impair access to accommodations or other spaces necessary to the safe working and navigation of the vessel and shall not be within 15 feet of ventilation terminals emitting warm air or hazardous vapors, such as from galleys and pumprooms, or within 10 feet of any unshielded radio apparatus or antenna lead.

(2) Magazine vans may be installed below decks in holds provided the hold location meets the location require-

ments for integral magazines. The cofferdam requirement of paragraph (a)(3) of this section is considered as fulfilled if the van is of steel construction. Holds so utilized shall not be used for stowage of other hazardous materials covered by 49 CFR parts 171-179. The stowage of other explosives or oxidizing materials in the same hold is permitted in accordance with the requirements of 49 CFR part 176.

(c) *Magazine chests.* (1) Magazine chests shall be located on the weather decks in a position suitable for jettisoning the contents.

(2) Magazine chests shall be set off at least 4 inches from decks and deckhouse.

(3) Magazine chests shall not be located within 15 feet of ventilation terminals emitting warm air or hazardous vapors, such as from galleys and pumprooms.

(4) Magazine chests intended for the stowage of blasting caps, detonators, or boosters, in addition to the requirements in this paragraph, shall not be stowed within 10 feet of any unshielded radio apparatus or antenna leads.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.10-10 Integral magazine construction.

(a) Magazines shall be of permanent watertight construction. Bulkheads and decks, including the deck overhead, which are common with storerooms or workshops shall be of A-15 construction as defined by § 72.05-10 of Subchapter H (Passenger Vessels) of this chapter. Flush construction shall be employed where practicable.

(b) Where the shell or unsheathed weather decks form boundaries of the magazine spaces suitable approved incombustible thermal insulation shall be provided to prevent condensation of moisture.

(c) Where a tank top forms the magazine deck it shall be insulated with an approved deck covering to prevent condensation of moisture. Tank top manholes shall not be installed in magazines.

(d) Light fixtures shall be of an approved type equipped with globes and guards. Control of the lighting system

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shall be from a location external to the magazine. An indicator light shall be provided at the switch location to indicate when the lighting circuits are energized. Other electrical equipment and wiring shall not be installed within or pass through the magazine. Electrical cables enclosed in a watertight trunk are permitted.

(e) Piping, other than fresh or salt water service and drainage system, shall not be routed through magazines except as required for the magazines themselves. Other piping systems enclosed in a watertight trunk are permitted.

(f) Access doors for the magazine, or magazine groups, shall be of substantial watertight construction and be provided with means whereby they may be securely locked.

(g) Racks, stanchions, battens, and other devices shall be installed to provide rigid and safe stowage of explosives in their approved shipping containers with a minimum of dunnage.

(h) Decks shall be covered with a permanent nonslip nonspark covering.

§ 194.10-15 Magazine van construction.

(a) Vans shall be of substantial metal construction. Their interior shall be insulated with an approved incombustible insulation to the standards required for A-15 divisional bulkheads as prescribed in part 72 of Subchapter H (Passenger Vessels) of this chapter. The interior shall be lined flush with incombustible materials.

(b) Lighting fixtures, if installed, shall be of an approved type equipped with globes and guards. All electrical installations shall meet the applicable requirements of Subchapter J (Electrical Engineering) of this chapter. The electrical terminals for connections to the ship's electrical system shall be of watertight construction and bear a label plate denoting the power requirement of the van.

(c) Access doors and ventilation closures shall be of watertight construction. Doors shall be provided with means whereby they may be securely locked.

(d) Vans shall be provided with suitable pads and clips for securing to the deck and for installation of wire rope sway braces.

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(e) Vans shall bear a label plate stating light weight, gross weight and weight of explosives. Gross weight shall not exceed 250 pounds per square foot of deck area.

§ 194.10-20 Magazine chest construction.

(a) Magazine chests shall be of watertight metal construction with flush interior. The body and lid shall have a minimum thickness of $\frac{1}{8}$ inch.

(b) Permanent sun shields shall be provided for sides and top including the lid. These shall have a minimum thickness of $\frac{1}{8}$ -inch aluminum or 16-gage steel. Side shields shall be offset from the body a distance of 1 inch. The top shield shall be offset a distance of $1\frac{1}{2}$ inches. Sun shields may be omitted when chests are installed "on deck protected," shielded from direct exposure to the sun.

(c) Chests shall be limited to a gross capacity of 100 cubic feet.

(d) Chests shall be secured to the vessel's structure by means of permanently installed foundation clips or bolts or a combination thereof. Lashings will not be acceptable.

(e) Chests shall be provided with substantial hasps and staples for locking purposes.

§ 194.10-25 Ventilation.

(a) *Integral magazines.* (1) All integral magazines shall be provided with natural or mechanical ventilation. Design calculations shall be submitted demonstrating that the system has sufficient capacity to maintain the magazine temperature below 100° F. with 88° F. weather air. Mechanical cooling may be used where ventilation requirements exceed 1,500 cubic feet per minute.

(2) Ventilation systems shall be of watertight construction and shall serve no other space. Weather cowls shall be provided with a double layer of wire screen of not less than $\frac{1}{8}$ -inch mesh. Metal watertight closures shall be provided for use when the ventilation system is not in operation. A 2-inch IPS bypass with check valve shall be provided in parallel with at least one of the ventilation closures to prevent pressure buildup.

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(b) *Magazine vans.* (1) All magazine vans shall be provided with natural ventilation sufficient to maintain the inside air temperature below 130° F. with an assumed outside temperature of 115° F.

(2) Ventilation supply weather openings shall be located at least 6 feet above the deck. Exhaust terminals shall be located in the van overhead. Louvers or weather cowls with a double layer of wire screen of not less than 1/8-inch mesh shall be provided for protection of weather openings.

§ 194.10-30 Magazine sprinklers.

(a) *Sprinkler system required.* (1) A manual control, hydraulic control, or automatic sprinkler system shall be installed in each magazine or magazine group. The control valve shall generally be in accordance with Specification MIL-V-17501 insofar as materials and test fittings are concerned. All systems shall be remotely operable from a control station on the freeboard deck and manually operable at the control valve location.

(2) Where automatic systems are installed sprinkler heads shall be of the open head design so as to permit either manual or automatic operation.

(3) Sprinkler systems shall be designed in accordance with the requirements of part 76 of Subchapter H (Passenger Vessels) of this chapter. Minimum total system capacity shall be based on 0.8 gallon per minute per square foot of overhead area.

(4) The normally required fire pumps may be used for magazine sprinkling purposes. However, the use of the magazine sprinkling system shall not interfere with the simultaneous use of the fire main system.

(b) *Magazine vans.* (1) A manual control sprinkler system shall be installed in each magazine van. The system shall be connected to the nearest fire main outlet by jumper hose. The hose shall be protected from physical damage by a grating or similar arrangement. The fire station valve shall serve as the sprinkler control valve.

(2) Sprinkler systems shall be designed in accordance with the requirements of part 76 of Subchapter H (Passenger Vessels) of this chapter, except that the system capacity shall be suffi-

cient to provide a coverage of 0.4 gallon per minute per square foot of overhead area.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 82-063b, 48 FR 4783, Feb. 3, 1983]

§ 194.10-35 Labeling.

(a) Labeling shall be in 3-inch block type lettering. Letters shall be red or white, whichever provides the better contrast against the background. On small chests the labeling size may be reduced to that consistent with the size of the chest so that the inscription may be placed in its entirety on the side or top.

(b) The access door to magazines and magazine vans shall bear the inscription:

MAGAZINE

KEEP OPEN LIGHTS AND FIRE AWAY

KEEP DOOR CLOSED

REMOVE MATCHES AND LIGHTERS
PRIOR TO ENTERING

(c) Magazine chests shall be marked in a conspicuous location, preferably the top, with the inscription:

MAGAZINE CHEST

KEEP OPEN LIGHTS AND FIRE AWAY

(d) Magazine chests used for blasting caps, detonators, or boosters shall be marked in a conspicuous location with the inscription as appropriate:

BLASTING CAP LOCKER

or

DETONATOR LOCKER

or

BOOSTER LOCKER

KEEP OPEN LIGHTS AND FIRE AWAY

(e) Magazine van, unless specifically approved as a portable magazine under provisions of 49 CFR 176.137 shall bear the additional statements on each side:

MAGAZINE

WARNING

DO NOT LIFT WITH CONTENTS

(f) Control locations for magazine sprinkler systems, in addition to the

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operating instructions required by § 76.20-20 of Subchapter H (Passenger Vessels) of this chapter shall bear the inscription:

MAGAZINE SPRINKLER CONTROL

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988; CGD 97-057, 62 FR 51051, Sept. 30, 1997]

Subpart 194.15—Chemistry Laboratory and Scientific Laboratory

§ 194.15-1 General.

(a) Chemical and scientific laboratories shall be considered service areas, and as such shall be subject to the applicable requirements of § 190.07-10(d).

(1) Incombustible materials shall be used, insofar as is reasonable and practicable, for permanently installed laboratory furnishings and equipment, such as desks, file and storage cabinets, waste paper baskets, work benches, chair frames, etc. Working surfaces where chemical stores are used shall be of incombustible material.

(2) Combustible materials may be used for other working surfaces and for temporary furnishings and equipment installed to facilitate a specific scientific mission.

(b) Storage of all equipment, materials, etc., and cleanliness shall be consistent with sound laboratory practices. All items shall be securely stowed.

(c) Provision shall be made for rapid removal of chemical spills and protection of the deck. In areas where chemicals will commonly be used, the deck shall be covered with a nonskid masonry or other suitably resistant material so fashioned that spillage will be contained and easily removed.

(d) The access doors to the laboratory shall bear the inscription "Chemical Laboratory", or "Scientific Laboratory", in lettering meeting requirements of § 194.10-35(a).

§ 194.15-3 Responsibility.

(a) With the knowledge and approval of the master, the senior member of the scientific party embarked may supervise the safety and operation of the chemical laboratory.

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(b) The laboratory supervisor shall:

(1) Maintain the highest standards of safe working conditions.

(2) Provide safeguards against hazardous undertakings.

(3) Educate personnel working in the laboratory spaces to be alert for hazards.

§ 194.15-5 Ventilation.

(a) Operations, reactions or experiments which produce toxic, noxious or corrosive vapors shall be conducted under a suitably installed fume hood. The fume hood shall be equipped with an independent power exhaust ventilation system which terminates so as to prevent fumes from entering other portions of the vessel. The exhaust system of the fume hood shall be compatible with the ventilation system of the laboratory to prevent fumes from backing-up within the fume hood system. The terminals shall be equipped with acceptable flame screens.

(b) Chemical laboratories shall be equipped with power ventilation system of the exhaust type serving the entire laboratory for use in the event of spills or other emergencies. The system shall have a capacity sufficient to effect a complete change of air in not more than 4 minutes based upon the volume of the compartment.

(1) Power ventilation units shall have nonsparking impellers and shall not produce a source of vapor ignition in either the compartment or the ventilation system associated with the compartment.

(2) The power ventilation system shall be interlocked with any other ventilation or air-conditioning system serving the laboratory in a manner to prevent the circulation of vapors to other spaces.

(3) This ventilation system shall be independent of any other ventilation system in the vessel. It shall serve no other space. It shall be of watertight construction.

(4) Ventilation exhaust outlets shall terminate more than 6 feet from any opening to the interior part of the vessel and from any possible source of vapor ignition.

(5) The control for the power ventilation system shall be conveniently located and marked in a manner to clearly identify the purpose of the control.

(c) Ventilation of air conditioning systems serving the chemical laboratory shall be designed so that air cannot be recirculated into an accommodation space.

§ 194.15-7 Fire protection.

(a) If a fixed or semiportable fire-fighting system is installed, it shall meet the applicable requirements in part 193 of this subchapter. Other fire-fighting systems will be given special consideration by the Commandant.

(b) Portable fire extinguishers are required in accordance with Table 193.50-10(a) of this subchapter.

§ 194.15-9 Storage.

(a) Chemical stores mentioned in § 194.05-3 may be stored in small working quantities in the laboratory provided their containers are labeled in accordance with § 194.05-5(a).

(b) Chemical stores in greater than small laboratory working quantities shall be stored in approved containers in the chemical storeroom as prescribed in § 194.05-1(b).

(c) All material stored in any laboratory shall be securely stowed for sea with due consideration for chemical compatibility and safety standards.

§ 194.15-11 Flushing systems.

(a) Working spaces in which chemical stores are used shall be equipped with a fresh water supply shower.

(b) There shall be a provision for flushing away chemical spills.

§ 194.15-15 Chemicals other than compressed gases.

Chemicals, including those listed in 49 CFR part 172, may be stored in small working quantities in the chemical laboratory.

[CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.15-17 Compressed gases other than inert gases.

(a) When, in consideration for a particular operation, compressed gases are needed within the laboratory, the cylinders may be temporarily installed in

the laboratory, provided no more than one (1) cylinder of each gas is in the laboratory simultaneously. When transporting compressed gas cylinders to, from, or within the vessel, the cylinder valves shall be capped or otherwise protected in accordance with 49 CFR 173.301(g).

(b) Cylinders temporarily installed in the laboratory shall be securely stowed for sea. Appropriate safety signs shall be displayed and safety precautions observed.

(c) Oxygen and acetylene cylinders for use in ship's maintenance shall not be stored in the laboratory.

(d) Systems providing gas for bunsen burners or similar semipermanent/permanent installations shall be installed in accordance with subpart 195.03 of part 195.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.15-19 Electrical.

(a) All electrical equipment located within 18 inches of the deck of the chemical laboratory shall be in accordance with the applicable requirements of Subchapter J (Electrical Engineering) of this chapter for Class I, Division 2, hazardous locations. Electrical equipment located 18 inches or more above the deck may be of a type suitable for wet or dry locations in accordance with Subchapter J.

Subpart 194.20—Chemical Stores and/or Storerooms

§ 194.20-1 General.

(a) The chemical storerooms shall be considered to be service areas and as such shall be subject to the applicable requirements of § 190.07-10(d).

(1) Installed equipment, such as shelves and cabinets, shall be constructed of incombustible materials.

(2) The access doors to the storeroom shall bear the inscription "Chemical Storeroom."

(b) Storage and cleanliness shall be consistent with good chemical stowage practices.

(c) The deck of the chemical storeroom shall be of a nonskid material suitably resistant to chemical spills.

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Provision shall be made for the containment and removal of chemical spills.

(d) Chemical reactions and experiments shall not be conducted in the chemical storeroom.

(e) A storeroom, when used as a chemical storeroom, shall be exclusively for the stowage of chemical stores.

(f) All doors shall open in the direction of escape.

(g) Movement of chemical stores to, or from, the storeroom shall be accomplished utilizing suitable, portable containers. In no event shall piping systems, or similar arrangements, be permitted for transfer of chemical stores between the storeroom and the area in which the chemical stores are to be used.

§ 194.20-3 Responsibility.

(a) With the knowledge and approval of the master the senior member of the scientific party embarked may supervise the safety and operation of the chemical storerooms.

(b) The chemical storeroom supervisor shall:

(1) Maintain the highest standards of safe working conditions.

(2) Provide safeguards against hazardous undertakings.

(3) Educate personnel working in, and near, the storeroom to be alert for hazards.

§ 194.20-5 Ventilation.

(a) Chemical storerooms shall be equipped with a power ventilation system of exhaust type. The system shall have a capacity sufficient to effect a complete change of air in not more than 4 minutes based upon the volume of the compartment.

(1) Power ventilation units shall have nonsparking impellers and shall not produce a source of vapor ignition in either the compartment or the ventilation system associated with the compartment.

(2) This ventilation system shall be independent of any other ventilation system. It shall serve no other space in the vessel. It shall be of watertight construction.

(3) Inlets to exhaust ducts shall be provided and located at points where

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concentration of vapors may be expected. Ventilation exhaust outlets shall terminate more than 6 feet from any opening to the interior part of the vessel and from any possible source of vapor ignition. Terminals shall be fitted with acceptable flame screens.

(4) The control for the power ventilation system shall be conveniently located and marked in a manner to clearly identify the purpose of the control.

(b) Provisions shall be made so that the chemical storeroom will be ventilated before it is entered. An Indicator shall be provided outside the space to show that ventilation is being provided. In addition, the storeroom shall be marked "Danger—Ventilate Before Entering."

§ 194.20-7 Fire protection.

(a) Each chemical storeroom shall be protected by a fixed automatic carbon dioxide extinguishing system installed in accordance with subpart 193.15 of part 193 of this subchapter.

(b) Portable fire extinguishers are required in accordance with Table 193.50-10(a) of this subchapter.

§ 194.20-9 Storage.

(a) Chemical stores shall be stored in the chemical storeroom as prescribed in § 194.05-1(b).

(b) All items stored in the storeroom shall be secured against shifting and with due consideration for chemical compatibility and safety standards.

(1) Items shall not be stowed on the deck.

(2) Shelving shall be so constructed as to provide a clear space of at least 4 inches between the bottom shelf and the deck.

§ 194.20-11 Flushing systems.

(a) Provision shall be made for flushing away chemical spills.

(b) If a drainage system is installed, it shall be separate from any other drainage system.

§ 194.20-15 Chemical stores other than compressed gases.

(a) Flammable liquids are excluded from the storeroom unless contained in properly marked and labeled metal safety cans not in excess of 5 gallons of each kind. Refer to subpart 194.05 for

applicable requirements governing quantities greater than 5 gallons.

(b) Combustible liquids in approved portable drums, barrels or containers not in excess of 55 gallons of each kind may be stored in the storeroom. Refer to subpart 194.05 for applicable requirements governing quantities greater than 55 gallons.

(c) Containers when used for dispensing flammable and combustible liquids shall be equipped with automatic closing valves.

(d) Poisons listed in 49 CFR part 172 may be stored in approved containers in the chemical storeroom.

(e) Explosives and oxidizing materials not for use in the chemical laboratory shall not be stored in the chemical storeroom.

(f) Chemical stores specifically mentioned in 49 CFR part 172 may be carried in the chemical storeroom.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.20-17 Compressed gases.

(a) Nonflammable compressed gases (excluding oxygen) may be securely stowed in the storeroom: *Provided*, That no more than eight (8) cylinders total are stowed simultaneously in the same chemical storeroom.

(b) Flammable compressed gases and oxygen shall be stowed in accordance with 49 CFR part 176, subpart H.

(c) Compressed gas cylinders shall have valve protection in accordance with 49 CFR 173.301(g) and shall be safely stowed in a vertical position in suitable racks.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.20-19 Piping and electrical requirements.

(a) Piping, electrical equipment, and wiring shall not be installed within or pass through a chemical storeroom except as required for the chemical storeroom itself.

(b) The electrical installation shall be in accordance with the applicable requirements of Subchapter J (Electrical Engineering) of this chapter for Class I, Division 1, Group C hazardous locations.

Subpart 194.90—Vessels Contracted for Prior to March 1, 1968

§ 194.90-1 Requirements.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved but not meeting the applicable requirements of subparts 194.05 through 194.20 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original design: *Provided*, That in no case will a greater departure from the standards of subparts 194.05 through 194.20 be permitted than presently exists.

(2) All new installations, major alterations, and major replacements shall meet the applicable requirements in this part for new vessels.

(3) The general requirements of subparts 194.05 through 194.20 shall apply unless in the opinion of the Officer in Charge, Marine Inspection, it is unreasonable or impracticable, or the arrangement or construction of the vessel makes it unnecessary.

PART 195—VESSEL CONTROL AND MISCELLANEOUS SYSTEMS AND EQUIPMENT

Subpart 195.01—Application

Sec.

195.01-1 General.

195.01-3 Incorporation by reference.

Subpart 195.03—Marine Engineering Systems

195.03-1 Installation and details.

Subpart 195.05—Electrical Engineering and Interior Communications Systems

195.05-1 Installation and details.

Subpart 195.06—Lifesaving Appliances and Arrangements

195.06-1 Lifesaving appliances and arrangements.